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10/080,826	02/21/2002	Yungping Hsu	MP0134	9521

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ART UNIT	PAPER NUMBER
2637	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/080,826	HSU ET AL.	
	Examiner	Art Unit	
	Qutub Ghulamali	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-128* is/are pending in the application.

4a) Of the above claim(s) *10-18, 66-68 and 121-123* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-9,19-22,37-44,46-65,69-77,83-104,106-120* is/are rejected.

7)☒ Claim(s) *5, 23, 36, 45, 54, 87, 96, 105, 78-82 and 124-128* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/21/2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/6/02,8/12/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-9, 19-65, 69-120, and 124-128 drawn to decoder, classified in class 375, subclass 229.

   II. Claims 10-18, 66-68 and 121-123, drawn to feedback filter in a feedback equalizer, classified in class 375, subclass 343.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because other selective equalization techniques can be used. The subcombination has separate utility such as matched filtering in selective equalization of subsymbol processing.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Eric B. Janosfsky on 9/22/2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-9, 19-65, 69-

120, and 124-128. Affirmation of this election must be made by applicant in reply to this Office action. Claims 10-18, 66-68 and 121-123 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

5. Claims 35, 59, 69 are objected to because of the following informalities:

Claim 1, line 2, recites "equalizer capable of"? Should not this be changed to "equalizer for"?

Claim 3, line 1, after "equalizer -- further -- requires to be inserted.

Claim 3, line 4, after "said" -- sub -- requires to be inserted.

Claim 4, line 2, after "coupled -- to -- needs to be inserted.

Regarding claim 35, line 2, shouldn't "perceiving" be "receiving"?.

Regarding claim 59, lines 4, 5 and 7, shouldn't "decided" be "decoded"?

Regarding claim 69, lines 3 and 5, shouldn't "decided be "decoded"?

Regarding claims 72 and 75, lines 5 and 6 respectively, shouldn't "decided be "decoded"?

Regarding claims 78 and 81, lines 6 and 3 respectively, shouldn't "deciding" be "decoding "?

The examiner has highlighted some of the errors in the claims. There are numerous such errors throughout in the clams 1-9, 19-65, 69-120, 124-128 that the applicant must redress to overcome the claim objections.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 19-21, 28-35, 37, 41-44, 46, 50-53, 55, are rejected under 35 U.S.C. 102(b) as being anticipated by Gelfand et al (USP 6,144,697).

Regarding claims 1 and 19, Gelfand discloses a decoder (subsystem 56) (col. 6, lines 23-27) comprising:

a feedback equalizer capable of receiving a modulated signal, the modulated signal including a symbol defined by a first number of chips (col. 3, lines 3-8, 13-23; col. 4, lines 52-60); and

a subsymbol processor (68) coupled to said feedback equalizer to generate a subsymbol waveform upon receipt of a second number of chips of the symbol and provide the subsymbol waveform to the feedback equalizer, the second number being less than the first number, said feedback equalizer to equalize the modulated signal using the subsymbol waveform (col. 3, lines 33-37, 40-54)

Regarding claims 2, 20, 33, 42, 51, Gelfand discloses a third number of chips (provides even and odd number samples), the third number being less than or equal to the second number (col. 9, lines 44-67; col. 10, lines 1-44; col. 12, lines 7-13, 29-49).

Regarding claims 3, 21, 34, 43, 52 Gelfand discloses feedback equalizer further comprising, a hard decision unit (66) coupled to said equalizer for determining hard decision

information associated with the modulated signal (col. 6, lines 43-50); and

a feedback filter (80) coupled to said hard decision unit and said symbol processor to selectively equalize the modulated signal using one of the hard decision information and the subsymbol waveform (col. 6, lines 50-59).

Regarding claim 28, Gelfand discloses transceiver comprising RF and IF sections coupled to feedback equalizer to provide the modulated signal to said feedback equalizer (in a transceiver (transmitter and a receiver) RF and IF processing is inherently implied though not explicitly shown (col. 4, lines 43-47).

As per claim 29, Gelfand discloses base station comprise the transceiver (col. 4, lines 61-63).

As per claim 30, Gelfand discloses network card comprising transceiver (a network card is inherently implied (processor) as disclosed in col. 4, lines 43-47..

Regarding claim 31, Gelfand's transceiver is an information processing system as disclosed (col. 2, lines 14-20).

Regarding claim 32, claim 32 is a corresponding method claim and is similarly analyzed as apparatus claims 1 and 19 above.

Regarding claims 41 and 50, Gelfand discloses receiver (50) has hardware or programming comprising:

receiving a modulated signal, the modulated signal including a symbol defined by a first number of chips (col. 3, lines 3-8, 13-23; col. 4, lines 52-60; col. 18, lines 1-15); and

generating a subsymbol waveform upon receipt of a second number of chips of the symbol, the second number being less than the first number (col. 3, lines 3-8, 13-23; col. 5, lines 20-51); and

equalizing the modulated signal using the subsymbol waveform (col. 3, lines 33-37, 40-54; col. 6, lines 16-22).

Regarding claims 35, 44, 53 Gelfand discloses generating decoded subsymbol information (68) upon receiving the second number of chips of the symbol; and

Generate a subsymbol waveform corresponding to the decoded subsymbol information (col. 3, lines 33-37, 40-54)

Regarding claims 37, 46, 55 Gelfand discloses information processor perform decoding the symbol upon receipt of the first number of chips defining the symbol (col. 3, lines 3-8, 13-23; col. 4, lines 52-60; col. 6, lines 16-34, 40-59).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 4, 6-9, 22, 24, 25, 27, 38-40, 47-49, 56-58, 83-86, 88-95, 97-100, 101-104, 106-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelfand et al (USP 6,144,697) in view of Andren et al (USP 6,603,801).

Regarding claim 4, Gelfand discloses all limitations of the claim. Gelfand however, does not explicitly disclose a demodulator and a remodulator. Andren in a similar field of endeavor discloses a demodulator (demodulation unit) coupled to said feedback equalizer and comprising subsymbol decoding processing logic capable of generating decoded subsymbol information

upon perceiving the second number of chips of the symbol (abstract; col. 2, lines 40-53, 57-67; col. 3, lines 5-15, 16-35; col. 8, lines 49-65); and

a remodulation unit coupled to said demodulation unit and said feedback equalizer, said remodulation unit generating a subsymbol waveform corresponding to the decoded subsymbol information (col. 3, lines 20-36).

As per claim 6, Gelfand discloses decision processor (logic) unit for decoding the symbol upon receipt of the first number of chips defining the symbol (col. 3, lines 3-8, 13-23; col. 4, lines 52-60; col. 6, lines 16-34, 40-59).

Regarding claims 7, 25, 38, 47, 56, 89, 98, 107, Gelfand discloses processing logic comprise first and second demodulation decoding pathways for decoding the symbol by at least one of first and second distinct modulation modes (col. 6, lines 5-27, 30-42).

Regarding claims 8, 9, 27, 39, 40, 48, 49, 57, 58, 90, 91, 100, 109, and 116, Gelfand discloses all limitations of the claim. Gelfand however, is silent regarding symbol is modulated in accordance with one of Barker spreading and complementary code keying (CCK) compliant with IEEE Standard 802.11b (1999). Andren in a similar field of endeavor discloses symbol is modulated in accordance with one of Barker spreading and complementary code keying (CCK) compliant with IEEE Standard 802.11b (1999) (col. 14, lines 53-56) (col. 6, lines 7-16). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Barker spreading and CCK codes as taught by Andren in the system of Gelfand because it can allow diversity and significant throughput of signals at low cost.

Regarding claim 38, Gelfand discloses all limitations of the claim. Gelfand however, is silent regarding decoding the symbol upon receipt of the first number

As to claims 83, 92, 101 and 114, the steps claimed as an apparatus is nothing more than restating the function of the specific components of the apparatus as claimed above and therefore, it would have been obvious, considering the aforementioned rejection for the apparatus claims 1-3, 9, to a person of ordinary skill in the art at the time the invention was made to use the means for receiving the modulated signal and generate a subsymbol waveform because it can equalize the modulated signal using subsymbols.

As per claims 84, 93, 102, Gelfand discloses a third number of chips (provides even and odd number samples), the third number being less than or equal to the second number (col. 9, lines 44-67; col. 10, lines 1-44; col. 12, lines 7-13, 29-49).

Regarding claims 85, 94, 103 Gelfand discloses feedback equalizer further comprising, a hard decision unit (66) coupled to said equalizer for determining hard decision information associated with the modulated signal (col. 6, lines 43-50); and a feedback filter (80) coupled to said hard decision unit and said symbol processor to selectively equalize the modulated signal using one of the hard decision information and the subsymbol waveform (col. 6, lines 50-59).

Regarding claim 110, Gelfand discloses transceiver comprising RF and IF sections coupled to feedback equalizer to provide the modulated signal to said feedback equalizer (in a transceiver (transmitter and a receiver) RF and IF processing is inherently implied though not explicitly shown (col. 4, lines 43-47).

As per claim 111, Gelfand discloses base station comprise the transceiver (col. 4, lines 61-63).

As per claim 112, Gelfand discloses network card comprising transceiver (a network card is inherently implied (processor) as disclosed in col. 4, lines 43-47.

Regarding claim 113, Gelfand discloses information processing system comprise transceiver (col. 4, lines 43-46).

As per claim 117, Gelfand discloses transceiver comprises a decoder (col. 6, lines 23-26).

As per claim 118, Gelfand discloses base station comprise the transceiver (col. 4, lines 61-63).

As per claim 119, Gelfand discloses network card comprising transceiver (a network card is inherently implied (processor) as disclosed in col. 4, lines 43-47.

Regarding claim 120, Gelfand discloses information processing system comprise transceiver (col. 4, lines 43-46).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 69-71, are rejected under 35 U.S.C. 102(e) as being anticipated by Andren et al (USP 6,603,801).

Regarding claim 69, Andren discloses decoding method for modulated signal including a Barker encoded symbol comprising:

generating a decoded waveform upon receipt of the first number of chips of the symbol (col. 3, lines 17-36; col. 16, lines 25-35); and

equalizing the modulated signal using the decided waveform (col. 2, lines 46-56; col. 3, lines 17-36).

Regarding claim 70, Andren discloses the modulated signal further includes a non-Barker encoded symbol defined by a second number of chips (col. 11, lines 55-60).

As per claim 71, Andren discloses the non-Barker encoded symbol comprises a CCK encoded symbol (col. 14, lines 53-56); and

wherein the Barker encoded and CCK encoded symbols are modulated in compliance with IEEE Standard 802. 11b, (col. 6, lines 7-16).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 72-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andren et al (USP 6,603,801).

Regarding claims 72 and 75, Andren discloses his transceiver can be implemented/integrated with any processor such as a computer (processors usually are regarded to have memory to perform program code operations) making it an obvious choice to a person of ordinary skill in the art to utilize. Andren further discloses decoding method comprising:

Receiving a modulated signal including a Barker encoded symbol defined by a first number of chips (col. 3, lines 17-36; col. 16, lines 25-35);

generating a decoded waveform upon receipt of the first number of chips of the symbol (col. 3, lines 17-36; col. 16, lines 25-35); and

equalizing the modulated signal using the decided waveform (col. 2, lines 46-56; col. 3, lines 17-36).

Regarding claims 73 and 76, Andren discloses the modulated signal further includes a non-Barker encoded symbol defined by a second number of chips (col. 11, lines 55-60).

As per claims 74 and 77, Andren discloses the non-Barker encoded symbol comprises a CCK encoded symbol (col. 14, lines 53-56); and

wherein the Barker encoded and CCK encoded symbols are modulated in compliance with IEEE Standard 802. 11b, (col. 6, lines 7-16).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelfand et al (USP 6,144,697) in view of Andren et al (USP 6,603,801).

Regarding claim 59, Gelfand discloses a decoder (subsystem 56) (col. 6, lines 23-27) comprising:

a symbol processor coupled to said feedback equalizer to generate a decoded waveform upon receipt of the first number of chips of the symbol and provide the decoded waveform to the feedback equalizer, said feedback equalizer to equalize the modulated signal using the decoded waveform (col. 3, lines 33-37, 40-54; col. 6, lines 16-22). Gelfand however, does not explicitly disclose, a feedback equalizer capable of receiving a modulated signal, the modulated signal including a Barker encoded symbol defined by a first number of chips. Andren in a similar field of endeavor discloses a feedback equalizer capable of receiving a modulated signal, the modulated signal including a Barker encoded symbol defined by a first number of chips (col. 8, lines 25-28; col. 11, lines 55-61). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a Barker encoded symbol defined by a first number of chips as taught by Andren in the system of Gelfand because inclusion of Barker encoding can provide better error rate performance in modulation and demodulation.

As per claim 60, Gelfand discloses the modulated signal includes non-Barker encoded symbols considered well known in the art (col. 9, lines 19-32, 36-44).

Regarding claim 61, Gelfand discloses all limitations of the claim. Gelfand however, is silent regarding the non-Barker encode symbol comprises code keying (CCK) encoded symbol; and

wherein the Barker encoded and CCK encoded symbols are modulated in compliance with IEEE Standard 802.11b (1999). Andren in a similar field of endeavor discloses symbol is modulated in accordance with one of Barker spreading and complementary code keying (CCK) compliant with IEEE Standard 802.11b (1999) (col. 14, lines 53-56) (col. 6, lines 7-16). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use

Barker spreading and CCK codes as taught by Andren in the system of Gelfand because it can allow diversity and significant throughput of signals at low cost.

As per claim 62, Gelfand discloses transceiver comprises a decoder (col. 6, lines 23-26).

As per claim 63, Gelfand discloses base station comprise the transceiver (col. 4, lines 61-63).

As per claim 64, Gelfand discloses network card comprising transceiver (a network card is inherently implied (processor) as disclosed in col. 4, lines 43-47.

Regarding claim 65, Gelfand's transceiver is an information processing system as disclosed (col. 2, lines 14-20).

Allowable Subject Matter

16. Claims 78-82 and 124-128 would be allowable if rewritten or amended to overcome the claim objections, set forth in this Office action.

17. Claims 5, 23, 36, 45, 54, 87, 96, 105 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and further amended to overcome the claim objections, set forth in this Office action.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

Somayazulu (USP 6,882,692) discloses a Fast Transform system for an extended database system.

Baldwin et al (USP 6,735,422) shows a calibrated DC compensation system.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG.
September 22, 2005.

JEAN B. CORRIELUS
PRIMARY EXAMINER
3-3-06